BEHAVIOR OF RC BEAMS WITH RECYCLE AGGREGATE AS COARSE AGGREGATE REPLACEMENT WITH ADDITION OF STEEL FIBRES

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ABSTRAK

Kemampanan adalah satu kebimbangan menekan pada abad ke-21. pembangunan sosial di kebanyakan negara adalah meningkatkan kesedaran mengenai keperluan generasi masa depan dan undang-undang untuk melindungi kualiti masa kini dan masa depan kehidupan. Salah satu cabaran besar di negara-negara yang disebabkan oleh kuantiti yang semakin meningkat adalah pembinaan dan perobohan pelupusan sisa. Jadi, tujuan kajian ini adalah untuk menentukan kelakuan rasuk konkrit bertetulang yang dibina daripada agregat biasa (NA) dan agregat konkrit kitar semula (RCA), dan untuk menyiasat prestasi penambahan gentian keluli dalam kitar semula rasuk konkrit bertetulang. agregat dikitar semula telah dibuat oleh menghancurkan konkrit sisa makmal kiub ujian dan rasuk. Terdapat empat jenis campuran konkrit yang akan diuji; [1] Kawalan Campuran (NC), [2] 50% Recycled Concrete Agregat (RCA) Campuran, [3] 50% Recycled Concrete Agregat (RCA) + 1.0% Gentian keluli Campuran (RCA-SF1%), [4] 50 % Recycled Concrete Agregat (RCA) + 2.0% Gentian keluli Campuran (RCA-SF2%). Tujuan menambah gentian keluli di dalam campuran konkrit untuk mengawal pembangunan retak, meningkatkan kekuatan ricih muktamad, mengurangkan pesongan rasuk konkrit, dengan itu, dan juga meningkatkan interlock agregat dengan simen dalam campuran konkrit. Kesimpulannya, hasil kajian ini menunjukkan bahawa peningkatan menjanjikan beban membawa kapasiti, dikawal retak corak dan juga mod kegagalan rasuk konkrit bertetulang.

ABSTRACT

Sustainability is a pressing concern on the 21st century. Social development in most countries is raising awareness of the needs of future generations and legislations to protect the present and future quality of life. One of the major challenge in developing nations that due to its ever increasing quantities is construction and demolition waste disposal. So, the purpose of this study are to determine the behaviour of reinforced concrete beams that are constructed from normal aggregates (NA) and recycled concrete aggregates (RCA), and to investigate the performance of addition of steel fibres in recycled reinforced concrete beams. Recycled aggregates were made by crushing the waste concrete of laboratory test cubes and beams. There are four types of concrete mixtures that will be tested; [1] Control Mixture (NC), [2] 50% Recycled Concrete Aggregate (RCA) Mixture, [3] 50% Recycled Concrete Aggregate (RCA) + 1.0% Steel Fibres Mixture (RCA-SF1%), [4] 50% Recycled Concrete Aggregate (RCA) + 2.0% Steel Fibres Mixture (RCA-SF2%). The purpose of adding steel fibres inside concrete mixture as to control the crack development, increases the ultimate shear strength, decreasing the deflection of concrete beams, thus, and also enhancing aggregate interlock with cement inside concrete mixture. As conclusion, this study outcome suggests that the promising enhancement of load carrying capacity, controlled cracking pattern and also failure mode of the reinforced concrete beams.